# Table 1. *In vivo* transduction efficiency of nNOS in liver cells from normal and injured livers

| Cell Type | Normal | BDL | $CCl_4$ |
|---|---|---|---|
| H | 41.9 ± 3.3 | 39.2 ± 3.3 | 37.3 ± 3.1 |
| SEC | 63.1 ± 7.8 | 52.7 ± 4.8 * | 41.2 ± 3.6* |
| HSC | 65.9 ± 4.5 | 50.4 ± 2.9* | 40.4 ± 2.7* |

Ad.nNOS was administered via the femoral vein ($1.5X10^{11}$ pfu/kg). For BDL rats, ad.nNOS was infused 2 days after BDL and for $CCl_4$ injury, virus was given 2 days after the 10th dose. Cell harvest was performed 7 days after adenovirus administration. After cell isolation, cells were allowed to adhere for 18 hours and NADPH-diaphorase staining was performed.

Numbers shown represent percent of total NADPH-diaphorase positive cells (i.e. transduced with nNOS, n=3). *P < 0.05 vs. normal. Abbreviations: H, hepatocyte; SEC, sinusoidal endothelial cells; HSC, hepatic stellate cell; BDL, bile duct ligation; $CCl_4$, carbon tetrachloride

# Table 2. Relative NO (nitrite) production in normal and injured liver cells after *in vivo* gene transfer

| Cell Type | Normal | | | BDL | | | $CCl_4$ | | |
|---|---|---|---|---|---|---|---|---|---|
| | Control | Ad.β-gal | Ad.nNOS | Control | Ad.β-gal | Ad.nNOS | Control | Ad.β-gal | Ad.nNOS |
| H | 0.2±0.0 | 0.2±0.0 | 1.3±0.3* | 0.3±0.0 | 0.4±0.0 | 1.3±0.3* | 0.2±0.0 | 0.2±0.0 | 0.3±0.1* |
| SEC | 5.7±0.1 | 5.6±0.1 | 8.9±0.4* | 10.8±0.2 | 11.4±0.3 | 16.9±0.5* | 0.4±0.0 | 0.4±0.0 | 2.1±0.4* |
| HSC | 0.4±0.1 | 0.4±0.1 | 6.2±0.8* | 2.0±0.5 | 1.9±0.3 | 4.4±0.8* | 0.3±0.1 | 0.3±0.1 | 1.3±0.3* |

Methods: Liver injury was induced as in Table 1. Ad.β-gal or Ad.nNOS were administered via femoral vein $1.5x10^{11}$ pfu/kg two days after BDL or the last dose of $CCl_4$. Liver cells were isolated 7 days later and were cultured for 24 hours after which nitrite concentrations in conditioned supernatants were determined. Shown are means ± SEM (μM/μg protein). *$p<0.05$ for Ad.nNOS transfected compared with control or Ad.β-gal transfected (n=3, for each condition). Abbreviations: H, hepatocyte; SEC, sinusoidal endothelial cells; HSC, hepatic stellate cell; BDL, bile duct ligation; $CCl_4$, carbon tetrachloride

# Table 3. Effect of transduced nNOS on portal pressure

| | Transduction State | Perfusion Pressure ($cmH_2O$) Flow Rate (ml/min) 20 | 30 | 40 | 50 | $P_{Q=0}$ ($cmH_2O$) | $Slope_{PQR}$ ($cmH_2O.min.ml^{-1}$) |
|---|---|---|---|---|---|---|---|
| | Normal | 4.1 ± 0.2 | 5.6 ± 0.4 | 7.4 ± 0.7 | 10.4 ± 0.5 | 0.81 ± 0.10 | 0.15 ± 0.01 |
| $CCl_4$ | Ad.β-gal | 8.5 ± 0.5# | 11.1 ± 0.9# | 14.7 ± 0.1# | 16.9 ± 0.3# | 2.98 ± 0.13# | 0.28 ± 0.02# |
| | Ad.nNOS | 6.3 ± 0.2#* | 8.7 ± 0.3#* | 12.0 ± 0.2#* | 14.9 ± 0.4#* | 1.16 ± 0.03#* | 0.27 ± 0.01# |
| BDL | Ad.β-gal | 8.8 ± 0.1# | 11.0 ± 0.6# | 13.6 ± 0.5# | 15.4 ± 0.6# | 3.32 ± 0.17# | 0.25 ± 0.02# |
| | Ad.nNOS | 7.4 ± 0.1#* | 9.0 ± 0.2#* | 11.2 ± 0.4#* | 13.9 ± 0.4#* | 2.00 ± 0.10#* | 0.24 ± 0.01# |
| | 7-NI | 9.1 ± 0.1# | 11.9 ± 0.2# | 13.8 ± 0.1# | 16.2 ± 0.2# | 3.33 ± 0.22# | 0.27 ± 0.0 # |
| | 7-NI/Ad.nNOS | 9.0 ± 0.3#¶ | 11.6 ± 0.2#¶ | 13.5 ± 0.3#¶ | 15.8 ± 0.5#¶ | 3.24 ± 0.10#¶ | 0.26 ± 0.05# |

Liver injury (BDL or $CCl_4$) was as in Example 1. Either Ad.nNOS or Ad.β-gal (each $1.5x10^{11}$ pfu/kg) were injected via the femoral vein 7 days prior to isolated liver perfusion. Portal pressure, monitored continuously, was recorded at incremental flow rates and portal resistance was calculated. In experiments where 7 NI was used, this compound was administered by intraperitoneal injection one day prior to BDL (25 mg/kg) and every 2 days thereafter. #P<0.05 vs. normal; *P<0.05 vs. Ad.β-gal for each injury model; ¶P<0.05 vs. Ad.nNOS (all, n=4). Abbreviations: BDL = ile duct ligation; $CCl_4$= carbon tetrachloride; $P_{Q=0}$ = flow inlet pressure; $Slope_{PQR}$ = regression lope of multiple point pressure flow relatic ships; 7-NI = 7-nitroindazole.